

thereof. To prevent over-heating of the components comprising the ECS system 11 during operation thereof, there may further preferably be provided a cooling air system (not shown) designed to circulate cooled air within the litter 12 when the ECS 11 is in use. Such system 11 may further be coupled to an environment sensor (not shown) to sense and/or regulate environmental conditions within the patient containment area. Such conditions may include temperature, light, pressure, humidity, as well as other environmental conditions. Thus, for example, environmental sensor may be operative to sense chemical and/or bacterial conditions within the housing, and to implement air filtration functions to deplete any chemical, biological contaminants. In this respect, such air filtration functions are normally implemented on a continuous basis in order to assure that the environmental conditions within the housing remain isolated from environmental conditions external to the housing.

With respect to operation of the system 10 of the present invention, such operation comprises the steps of removing the containment enclosure 14 from its collapsed, packaged condition and charging the bottom portion of the containment enclosure 14 across the litter 12, and attaching the bezel 52, being an integral part thereof, to the patient circuit interface 22 of the life support stretcher 12, the latter providing access to the ventilator subsystem 66 via inlet valve 28. The patient is then positioned thereupon. As will be recognized, to the extent additional medical devices, tubes, wiring and the like are to be deployed, the same are passed into the containment enclosure opening, through the bezel 52 and from the patient circuit interface 22 and connected to the patient positioned thereupon.

Thereafter, the fastening device 20 is slid about the peripheral edges of the upper and lower bag portions to form an air-tight seal. Environmental and decontamination systems contained within the ECS 11 are then activated with air being purified and passed from the ECS 11 to the containment enclosure by way of the tubular passageways 46, 48 thereof. Air will thus flow over the patient in the head-to-toe manner discussed above.

While in such isolated state, the patient may be transported via conventional means and, upon arrival at a suitable medical facility, may be treated as necessary. To that end, the ECS 11 need only be turned off and the sealable closure opened to thus gain access to the patient. Although not shown, the containment enclosure 14 of the present invention may further be provided with patient access means, which may comprise a flexible hand sock-type portal which is formed upon the containment enclosure 14 and strategically position for complete patient access. Such portal system, as those skilled in the art will appreciate, is preferably designed to be left hand/right hand independent and designed to maximize the care provider's hand manipulative abilities and finger functioning dexterity. Following use of the containment enclosure 14, the same may be discarded or, alternatively, decontaminated, sterilized and repackaged for reuse.

Although the invention has been described herein with specific reference to a presently preferred embodiment thereof, it will be appreciated by those skilled in the art that various additions, modifications, deletions and alterations may be made to such preferred embodiment without departing from the spirit and scope of the invention. Accordingly, it is intended that all reasonably foreseeable additions, modifications, deletions and alterations be included within the scope of the invention as defined in the following claims.

What is claimed is:

1. A self-contained isolation and environmental protection system for protecting a medical patient from a contaminated environment comprising:

a) a body capsule attachable to a litter having an interior compartment for receiving and isolating said medical patient, said body capsule comprising first and second bag portions interconnectable to one another that cooperate to form said interior compartment, said body capsule further having a fastener for fastening said first and second bag portions to one another for opening and closing said body capsule and respectively exposing or isolating said interior compartment from said contaminated environment, said body capsule being formed from a material substantially impermeable to vapor fumes and contagions present in the surrounding external environment;

b) an Environmental Control System (ECS) for providing decontaminated, conditioned and refreshed air;

c) an interface formed upon said body capsule for coupling and interconnecting with said ECS; and

d) a passageway formed upon said body capsule fluidly connected to said ECS for receiving air therefrom, said passageway having at least one inwardly-facing aperture formed thereon such that when said passageway is supplied with air provided by said ECS, said air is caused to pass through said aperture and into said interior compartment of said body capsule.

2. The system of claim 1 wherein said ECS comprises:

a) an apparatus for receiving air from the external surroundings;

b) a filter for extracting contaminating particles and gas from said air received from said external environment; and

c) an apparatus for passing said filtered and decontaminated air into said body capsule.

3. The system of claim 2 wherein said ECS is designed and configured to deliver said air in a manner so as to establish a predetermined air pressure which is higher than the external ambient air pressure.

4. The system of claim 2 wherein said ECS further includes an apparatus for attemporating the air delivered to said body capsule to a predetermined temperature.

5. The system of claim 4 wherein said system further comprises:

d) an environmental sensor coupled to said apparatus for attemporating said air temperature for selectively controlling the predetermined temperature to which said air is attemporated.

6. The system of claim 2 wherein said ECS further comprises a source of conditioned and filtered air and means for distributing said air to a ventilator subsystem provided in said litter.

7. The system of claim 1 further comprising:

a) a pressure relief system coupled to said body capsule, said pressure relief system being designed and configured to release a portion of said air delivered to said body capsule and filter and decontaminate a portion of said air delivered to said body capsule.

8. The apparatus of claim 1 wherein said passageway for receiving pressurized air comprises a plurality of tubular gas passageways fluidly connected to one another such that when said plurality of tubular passageways are supplied with pressurized air, said body capsule assumes an expanded position to form a semi-rigid structure.

9. The apparatus of claim 1 wherein said passageway has a plurality of inwardly facing apertures formed thereon, said plurality of apertures being designed and configured to deliver and distribute air into said interior compartment of said body capsule.